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GREGORY B. ARNOLD

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EXAMINER

FUREMAN, JARED

ART UNIT

PAPER NUMBER

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Please find below and/or attached an Office communication concerning this application or proceeding.



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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Paper No. 04/02/04

Application Number: 09/384,675
Filing Date: August 27, 1999
Appellant(s): ARNOLD ET AL.

Mr. Joseph J. Grass
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 9/29/2003.

MAILED

APR 06 2004

GROUP 2800

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is incorrect (Appellants did not state that claims 1-36 have been canceled). A correct statement of the status of the claims is as follows:

This appeal involves claims 37-67, 69, 70, and 72.

Claims 73-76 are allowed.

Claims 68 and 71 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 1-36 have been canceled.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct (The amendment after final, filed on 2/13/2003, has been entered).

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

Appellant's brief includes a statement that claims 38-52, 55, 57-67, 69, 70 and 72 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

5,047,615	Fukumoto et al.	9-1991
5,186,558	Sherman et al.	2-1993
5,541,398	Hanson	7-1996
5,486,259	Goodwin et al.	1-1996
6,068,420	Austin et al.	5-2000
6,202,642	McKinnon et al.	3-2001

A translation of the abstract of NL 174772 B, which published 3/1/1984, from the Derwent database (the entire document is not available).

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 37, 51-54, and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukumoto et al (US 5,047,615, previously cited) in view of the admitted prior art and Sherman et al (US 5,186,558, previously cited).

Fukumoto et al teaches a hand-held printer (3), comprising: an elongate printer housing having a portion to receive the palm of a user's hand (the bottom of the housing), the housing having a front portion and a rear portion, the printer housing including a compartment (7) to embrace a portable data entry device (1), the housing providing space for mounting a roll of a printable web (as can be seen in figure 1, the printer housing includes tabs which receive and support a roll of label web (6)), a thermal print module (45) at the rear portion of the printer housing, the compartment having an open top to provide access to the portable data entry device, wherein the printer housing length is at least twice as great as the width, a hand-held printer in combination with the portable data entry device (see figures 1-5, column 1 lines 8-15, 23-36, 43-49, column 1 line 60 – column 2 line 3, and column 2 line 39 – column 4 line 23).

Fukumoto et al fails to specifically teach a platen roll at the rear portion, the print module including thermal print head cooperable with the platen roll for printing on the web and an electric motor for moving the platen roll, wherein the platen roll is pivotally mounted toward and away from the print head, wherein the housing includes a cover, and wherein the platen roll is pivotally mounted to the cover, wherein the platen roll forms part of the print module.

However, the admitted prior art teaches a print module (34) comprising: a platen roll (indicated as both 39 and 45 on page 4, lines 25 and 29, of the specification, but shown as 39 in figure 7), the print module including thermal print head (38) cooperable with the platen roll for printing on the web and an electric motor (47) for moving the

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platen roll, wherein the platen roll is pivotally mounted toward and away from the print head, wherein the housing includes a cover (52), and wherein the platen roll is pivotally mounted to the cover, wherein the platen roll forms part of the print module (see figure 7, page 4 lines 18-20, page 4 line 28 - page 5 line 21)

In view of the admitted prior art's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the system as taught by Fukumoto et al, a platen roll at the rear portion, the print module including thermal print head cooperable with the platen roll for printing on the web and an electric motor for moving the platen roll, wherein the platen roll is pivotally mounted toward and away from the print head, wherein the housing includes a cover, and wherein the platen roll is pivotally mounted to the cover, wherein the platen roll forms part of the print module, in order to provide a compact, conventional, print module that has easily replaceable parts (see page 5, lines 17-21, of the specification) in the event that the print module becomes damaged or worn.

Fukumoto et al as modified by the admitted prior art fails to specifically teach the printer housing including a channel and flanges at opposite sides of the housing, an electrical connector on the housing for connection to the data entry device, the connector being disposed between the front portion and the roll-mounting space, a releasable latch to latch the portable data entry device in the compartment of the printer housing, the compartment having an open top between the flanges, the compartment being open at the end of the front portion to enable a portable data entry device to be slidably received through the open end.

Sherman et al teaches a printer housing (16) having a front portion and a rear portion, the printer housing including a channel (39) and flanges (45) at opposite sides of the channel housing to embrace a portable data entry device (40), an electrical connector (135 having contacts 140) on the housing for connection to the data entry device, the connector being disposed at the end of the channel away from the front portion, a releasable latch (42) to latch the portable data entry device in the compartment of the printer housing, the compartment having an open top between the flanges, the compartment being open at the end of the front portion to enable a portable data entry device to be slidably received through the open end (see figures 1, 5, column 3 lines 56-65, column 5 lines 1-32, column 9 lines 24-29, 43-46).

In view of Sherman et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the system as taught by Fukumoto et al as modified by the admitted prior art, the printer housing including a channel and flanges at opposite sides of the housing, an electrical connector on the housing for connection to the data entry device, the connector being disposed between the front portion and the roll-mounting space, a releasable latch to latch the portable data entry device in the compartment of the printer housing, the compartment having an open top between the flanges, the compartment being open at the end of the front portion to enable a portable data entry device to be slidably received through the open end, in order to provide a compartment wherein the data entry device can be inserted and connected in a single motion (as compared to the system shown in figures 1 and 2

of Fukumoto et al, which requires tilting, sliding, and dropping the data entry device into the compartment), thereby providing a more ergonomic system.

Claims 38-42 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukumoto et al as modified by the admitted prior art and Sherman et al as applied to claim 37 above, and further in view of Hanson (US 5,541,398).

Fukumoto et al as modified by the admitted prior art and Sherman et al fails to specifically teach the palm-receiving portion being contoured and concave, a strap adjacent the contoured portion, wherein the palm-receiving portion of the printer housing is concave between the front portion and the rear portion, a strap connected to the printer housing and capable of passing around the back of the user's hand, wherein the palm-receiving portion is disposed between the front and rear portions.

Hanson teaches a hand-held device (14), comprising: a housing (19) having a portion (20) to receive the palm of the user's hand, the palm-receiving portion being contoured and concave (see figure 1), a strap (33) adjacent the contoured portion, wherein the palm-receiving portion of the housing is concave between a front portion and a rear portion of the housing (see figure 1), the strap being connected to the housing and capable of passing around the back of the user's hand, wherein the palm-receiving portion is disposed between the front and rear portions (see figure 1, column 5 lines 4-8, 57-61, and column 6 lines 30-35).

In view of Hanson's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the system as taught by Fukumoto

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et al as modified by the admitted prior art and Sherman et al, the palm-receiving portion being contoured and concave, a strap adjacent the contoured portion, wherein the palm-receiving portion of the printer housing is concave between the front portion and the rear portion, a strap connected to the printer housing and capable of passing around the back of the user's hand, wherein the palm-receiving portion is disposed between the front and rear portions, in order to provide a housing so as to conveniently fit into an open palm of a person intending to use the data terminal (see column 5 lines 4-8, of Hanson) and to prevent an operator from accidentally dropping the terminal (see column 6 lines 30-35, of Hanson).

Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukumoto et al as modified by the admitted prior art and Sherman et al *further in view of* Goodwin (US 5,486,259, previously cited).

The teachings of Fukumoto et al as modified by the admitted prior art and Sherman et al have been discussed above.

Fukumoto et al as modified by the admitted prior art and Sherman et al fails to specifically teach the housing having a pair of opposed connected substantially mirror-image housing sections, wherein each housing section includes one of the flanges.

Goodwin et al teaches a portable printer (10) including a housing (11) having a pair of opposed connected substantially mirror-image housing sections (35 and 36) (see figures 1-3 and column 3 lines 11-3).

In view of Goodwin et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the system as taught by Fukumoto et al as modified by the admitted prior art and Sherman et al, the housing having a pair of opposed connected substantially mirror-image housing sections, thereby providing each housing section with one of the flanges, in order to easily allow insertion of the internal components during manufacturing.

Claims 44, 45, 66, 67, 69, and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukumoto et al as modified by the admitted prior art, Sherman et al, and Goodwin et al as applied to claim 43 above, and further in view of Austin et al (US 6,068,420, previously cited).

Fukumoto et al as modified by the admitted prior art, Sherman et al, and Goodwin et al fails to specifically teach a printer printed circuit board supported by the housing sections, wherein the print module is mounted on the printer circuit board, wherein the mirror-image housing sections receive the printed circuit board.

Austin et al teaches a portable printer (10), comprising: an elongate housing having a front portion, a rear portion, the housing providing space for receiving a roll of a label web (30), an elongate printed circuit board (40), received by the housing and supported within the housing, and a print module (38) being mounted to the circuit board at the rear portion of the housing (see figures 3, 4, column 3 lines 50-65, column 4 lines 12-21, column 7 lines 65-66).

In view of Austin et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the system as taught by Fukumoto et al as modified by the admitted prior art, Sherman et al, and Goodwin et al, a printer printed circuit board supported by the housing sections, wherein the print module is mounted on the printer circuit board, wherein the mirror-image housing sections receive the printed circuit board, in order to provide a secure electrical connection between the components of the system, and to avoid the need for a print head cable by mounting the print head directly on the circuit board (see column 7 lines 65-66, of Austin et al).

Claims 46, 57-60, and 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukumoto et al as modified by the admitted prior art, Sherman et al, Goodwin et al, and Austin et al further in view of McKinnon et al (US 6,202,642, previously cited).

The teachings of Fukumoto et al as modified by the admitted prior art, Sherman et al, Goodwin et al, and Austin et al have been discussed above.

While Fukumoto et al teaches a battery (49) within the printer housing (see figure 5), Fukumoto et al as modified by the admitted prior art, Sherman et al, Goodwin et al, and Austin et al fails to specifically teach at least one battery being mounted on the printed circuit board, the battery being at the front portion of the housing, a plurality of adjacent batteries, a separator between each pair of adjacent batteries, the separators being secured to the printer circuit board.

McKinnon et al teaches an elongate printed circuit board (2700), a plurality of adjacent batteries (2704) mounted on the printed circuit board at the front portion of a housing (bottom 2708, top 2724), a separator (2712) between each pair of adjacent batteries, and the separators being secured to the printed circuit board (see figure 27 and column 13 lines 54-60).

In view of McKinnon et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the system as taught by Fukumoto et al as modified by the admitted prior art, Sherman et al, Goodwin et al, and Austin et al, at least one battery being mounted on the printed circuit board, the battery being at the front portion of the housing, a plurality of adjacent batteries, a separator between each pair of adjacent batteries, the separators being secured to the printer circuit board, in order to securely mount the batteries within the housing.

Claims 47-49 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukumoto et al as modified by the admitted prior art and Sherman et al as applied to claim 37 above, and further in view of Austin et al and McKinnon et al.

Fukumoto et al also teaches the portable data entry device including an elongate data entry device housing having a front end, a scanner (2) disposed on the front end of the data entry device housing for scanning a code (not shown), a display (4) and a plurality of manually operable keys (5), the scanner being capable of receiving data through the end of the compartment (the scanner extends through an open portion of the front end) (see figures 1, 2, and 4).

Fukumoto et al as modified by the admitted prior art and Sherman et al fails to specifically teach a printer printed circuit board supported within the housing, wherein the print module is mounted on the printer circuit board.

The teachings of Austin et al have been discussed above.

In view of Austin et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the system as taught by Fukumoto et al as modified by the admitted prior art and Sherman et al, a printer printed circuit board supported within the housing, wherein the print module is mounted on the printer circuit board, in order to provide a secure electrical connection between the components of the system, and to avoid the need for a print head cable by mounting the print head directly on the circuit board (see column 7 lines 65-66, of Austin et al).

While Fukumoto et al teaches a battery (49) within the printer housing (see figure 5), Fukumoto et al as modified by the admitted prior art, Sherman et al, and Austin et al fails to specifically teach at least one battery being mounted on the printed circuit board.

The teachings of McKinnon et al have been discussed above.

In view of McKinnon et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the system as taught by Fukumoto et al as modified by the admitted prior art, Sherman et al, and Austin et al, at least one battery being mounted on the printed circuit board, in order to provide a secure electrical connection between the components of the system, and to securely mount the batteries within the housing.

Claim 50 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukumoto et al as modified by the admitted prior art and Sherman et al as applied to claim 37 above, and further in view of Texas Instruments Inc. (assignee) (NL 174772 B, abstract only).

Fukumoto et al as modified by the admitted prior art and Sherman et al fails to specifically teach the printer weighing less than 16 ounces.

Texas Instruments Inc. teaches a portable printer which weighs 220 grams (which is less than 8 ounces) (see the title).

In view of Texas Instruments Inc.'s teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the system as taught by Fukumoto et al as modified by the admitted prior art and Sherman et al, the printer weighing less than 16 ounces, in order to provide a light weight printer, thereby providing easy portability and preventing user fatigue.

Claims 61-64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukumoto et al as modified by the admitted prior art and Sherman et al in view of Austin et al.

The teachings of Fukumoto et al as modified by the admitted prior art and Sherman et al have been discussed above. Fukumoto et al also teaches the portable data entry device including an elongate data entry device housing having a front end, a scanner (2) disposed on the front end of the data entry device housing for scanning a code (not shown), a display (4) and a plurality of manually operable keys (5), the

scanner being capable of receiving data through the end of the compartment (the scanner extends through an open portion of the front end) (see figures 1, 2, and 4).

Fukumoto et al as modified by the admitted prior art and Sherman et al fails to specifically teach a printer printed circuit board disposed in the housing, the printer printed circuit board having a front portion and a rear portion, the print module mounted to the rear portion of the printer circuit board.

The teachings of Austin et al have been discussed above.

In view of Austin et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the system as taught by Fukumoto et al as modified by the admitted prior art and Sherman et al, a printer printed circuit board disposed in the housing, the printer printed circuit board having a front portion and a rear portion, the print module mounted to the rear portion of the printer circuit board, in order to provide a secure electrical connection between the components of the system, and to avoid the need for a print head cable by mounting the print head directly on the circuit board (see column 7 lines 65-66, of Austin et al).

(11) *Response to Argument*

In response to appellant's argument that the examiner based all of the rejections in part on Fig. 7 of the present application, he characterized appellant's own disclosure as prior art for the first time in the Final Office Action, this is a new and improper rejection (see page 8, of the appeal brief filed on 9/29/2003): The new ground of rejection presented in the Final Office Action (mailed 11/20/2002) were necessitated by

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appellant's amendment that was filed on 8/23/2002. The examiner only relied upon those portions of figure 7 which appellants have described as prior art in the specification (see page 4, lines 19-20, and page 4, line 48 - page 5, line 21, of the specification), namely the print module 34. Note that in appellant's letter, filed on 12/02/2002 (see the first page), appellants indicated that the circuit board (indicated at 59 in figure 4) and the connector 31 shown in figure 7 are not prior art. However, the rejection does not rely upon the circuit board or connector shown in figure 7, the rejection only relies upon the print module (34) which appellants defined as a prior art print module in the specification. Since appellants described that the print module 34, and the components comprising the print module 34, are prior art, the rejection is proper.

In response to appellant's argument that, in Fukumoto et al the roll is mounted outside the housing (see page 10, lines 11-13, of the appeal brief filed on 9/29/2003), claim 37 only recites "... the housing providing space for mounting a roll of a printable web, ..." (see claim 37, lines 8-9). This limitation does not require that the roll of printable web is located inside or within the housing. Fukumoto et al shows that the paper 6 is held by arms (not labeled) that are part of the printer (3) housing, at the rear of the printer (see figures 1-3, of Fukumoto et al). Thus, Fukumoto et al meets the limitation that the housing provides space for a mounting of a roll of a printable web.

Appellant's arguments that Fukumoto et al does not teach a printer housing including a channel and flanges at opposite sides of the housing providing a compartment to embrace a portable data entry device, an electrical connector disposed

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between the front portion and a roll-mounting space, a print module which includes a thermal print head cooperable with a platen roll and an electric motor for moving the platen roll, a releasable latch to latch the portable data entry device in the compartment, a compartment open at the end of the front portion to enable a portable data entry device to be slidably received through the open end (see page 9, line 25 - page 11, line 3 of the appeal brief filed on 9/29/2003), the rejection does not rely upon Fukumoto et al for teaching these features. Rather, the rejection relies the admitted prior art and Sherman et al for teaching these features. For example, the admitted prior art teaches a print module (34) which includes a thermal print head (38) cooperable with a platen roll (39) (mistakenly indicated 45 on page 4, line 29 of the specification, see page 4, line 25) and an electric motor (47) for moving the platen roll (see figure 7, page 4, lines 19-20, and page 4, line 48 - page 5, line 21, of the specification). One of ordinary skill in the art at the time of the invention would have combined the print module (34) with the device as taught by Fukumoto et al in order to provide a small and compact print module. Sherman et al teaches a printer housing (16) including a channel (39) and flanges (45) at opposite sides of the housing providing a compartment (the space within the channel 39) to embrace a portable data entry device (40), an electrical connector (135 having contacts 140) disposed at the rear of the compartment, a releasable latch (42) to latch the portable data entry device in the compartment, the compartment is open at the end of the front portion to enable a portable data entry device to be slidably received through the open end (the channel 39 is open at the end of the front portion) (see figures 1, 5, column 3 lines 56-65, column 5 lines 1-32, column 9 lines 24-29, 43-

46, of Sherman et al). One of ordinary skill in the art at the time of the invention would have combined the teachings of Sherman et al with the device as taught by Fukumoto et al as modified by the admitted prior art in order to provide a compartment wherein the data entry device can be inserted and connected in a single motion (as compared to the system shown in figures 1 and 2 of Fukumoto et al, which requires tilting, sliding, and dropping the data entry device into the compartment), thereby providing a more ergonomic system while also securely holding the data entry device within the compartment.

In response to appellant's argument that Sherman et al is not hand-held, there is no teaching of a print module at the rear portion of the printer housing, Sherman et al does not teach a connector disposed between the front portion and the roll mounting space, Sherman et al does not teach flanges at opposite sides of the housing, and Sherman et al does not teach an elongate printer housing having a portion to receive the palm of a user's hand (see page 11, lines 4-23, of the appeal brief filed on 9/29/2003), the primary reference, Fukumoto et al, teaches that the printer is hand-held, a thermal printer (45, see figure 5 of Fukumoto et al) and an elongate printer housing having a portion (the bottom of the printer 3 housing, as shown in figure 1). Fukumoto et al shows the paper (6) being mounted at the rear portion of the printer (3) housing, thus, it is apparent to one of ordinary skill in the art at the time of the invention that the printer (45) would also be mounted at the rear portion of the printer housing. Sherman et al teaches that the connector (135) is mounted at the rear of the compartment formed by the channel (39) and the flanges (45) being mounted on opposite sides of the

channel (39) and embracing the data entry device (40). Sherman et al's device includes a handle (28, see figure 1), which allows the device to be carried by a user's hand.

Thus, the device as taught by Sherman et al can be considered hand-held. Sherman et al is not being relied upon for teaching a print module at the rear portion of the housing, since Fukumoto et al as modified by the admitted prior art already teaches this feature (as discussed above). Thus, when combining Sherman et al with Fukumoto et al and the admitted prior art, one of ordinary skill in the art at the time of the invention would naturally place the connector at the rear portion of the Fukumoto et al's channel, between the front portion and a roll mounting space, and place the flanges at the opposite sides of the channel/housing as taught by Fukumoto et al since these are the corresponding locations in the device as taught by Fukumoto et al.

In response to appellant's argument that the examiner has redesigned the Fukumoto et al device based on appellants own disclosure, there is no motivation to do the redesign suggested by the examiner (see page 11, lines 23-26, of the appeal brief filed on 9/29/2003), one of ordinary skill in the art at the time of the invention would recognize that the channel and flange structure as taught by Sherman et al allows a simpler and more ergonomic means/method for inserting the portable data entry device into the channel, since the data entry device can be inserted and connected in a single motion by simply sliding the portable data entry device into the channel (as compared to the system shown in figures 1 and 2 of Fukumoto et al, which requires tilting the hand held computer 1 to insert the end of the hand held computer under the retaining piece 8, sliding the data entry device to clear the end of the channel, and dropping the data entry

device into the compartment). Thus, the motivation to combine Sherman et al with Fukumoto et al as modified by the admitted prior art comes from the teachings and suggestions of Sherman et al and the general knowledge available to one of ordinary skill in the art at the time of the invention.

In response to appellant's argument that Fukumoto et al is devoid of teaching housing sections having a pair of substantially mirror image housing sections, wherein each housing section includes one of the flanges, and Sherman et al teaches that the flanges are all part of a unitary part (see page 12, lines 1-8, of the appeal brief filed on 9/29/2003), the rejection of claim 43 is based upon Fukumoto et al as modified by the admitted prior art and Sherman et al further in view of Goodwin et al. By typographical error, the final office action left out "further in view of Goodwin et al". This is clear from the text of the rejection of claim 43. This point was also brought to appellants attention in the PTO-462 mailed on 5/27/2003 (see the second to last paragraph on the continuation sheet), and appellants responded that the typographical error can be taken care of in the examiners answer (see the last paragraph beginning on page 1 and continuing to page 2 of the letter filed on 6/9/2003). Goodwin et al teaches a portable printer (10) including a housing (11) having a pair of opposed connected substantially mirror-image housing sections (35 and 36) (see figures 1-3 and column 3 lines 11-3). One of ordinary skill in the art at the time of the invention would combine the substantially mirror-image housing sections, as taught by Goodwin et al, with the system as taught by Fukumoto et al as modified by the admitted prior art and Sherman et al to meet the claimed limitations, in order to allow simpler manufacturing of the

device by allowing easy insertion of the internal components into the mirror-image housing sections.

In response to appellant's argument that there is no way for anyone to tell how the Fukumoto et al device could be modified to include pivotally mounting a platen roll toward and away from the print head (see page 12, lines 9-16, of the appeal brief filed on 9/29/2003), and it is unobvious as to where or how the platen roll would be pivotally mounted to the cover and cooperate with the print head of Fukumoto et al (see page 12, lines 17-25, of the appeal brief filed on 9/29/2003), also see the argument regarding claim 54 (appearing on page 13, lines 4-7, of the appeal brief filed on 9/29/2003), the rejection of claims 51, 52, and 54 are based upon Fukumoto et al as modified by the admitted prior art and Sherman et al, not the Axiom publication. The admitted prior art teaches the platen roll (39 in figure 7) being pivotally mounted, to a cover (52), toward and away from the print head (38). When combining the admitted prior art with Fukumoto et al, one of ordinary skill in the art at the time of the invention would replace the thermal printer (45), as taught by Fukumoto et al, with the print module (34), as taught by the admitted prior art. As discussed above, one of ordinary skill in the art at the time of the invention would be motivated to combine the admitted prior art with Fukumoto et al, in order to provide Fukumoto et al with a small and compact print module that has easily replaceable parts (see page 5, lines 17-21, of the specification), in the event that the print module becomes damaged or worn.

In response to appellant's argument that 53 is allowable for the same reasons as parent claim 37 but is more specific as to structure (see page 13, lines 1-3, of the

appeal brief filed on 9/29/2003), claim 53 recites that the length of the printer housing is at least twice as great as the width. As addressed in the rejection above, Fukumoto et al clearly shows that the length of the printer (3) housing is at least twice as great as the width (see figure 1).

In response to appellant's argument, regarding claim 56, that the parent claim 37 defines that the compartment is open at the end of the front end to enable a portable data entry device to be slidably received through the open end, and also enables the portable data entry device which has a scanner to be used (see page 13, lines 8-16, of the appeal brief filed on 9/29/2003), the teachings of Fukumoto et al as modified by the admitted prior art and Sherman et al, as applied to claim 37, have been discussed above. Furthermore, neither claim 56, or parent claim 37 requires that the portable data entry device includes a scanner.

In response to appellant's argument that Hanson does not disclose a printer, rather it discloses a data terminal or data entry device, it is just hindsight to attempt to reposition the palm-receiving portion of Fukumoto et al (see page 13, line 17 - page 14, line 2, of the appeal brief filed on 9/29/2003), the palm-receiving portion of Fukumoto et al is not contoured (see page 14, lines 3-5 of the appeal brief filed on 9/29/2003), it is hindsight to modify Fukumoto et al by providing a strap at a contoured palm-receiving portion (see page 14, lines 6-9, of the appeal brief filed on 9/29/2003), claim 41 defines that the palm-receiving portion of the printer housing is concave between the front portion and the rear portion (see page 14, lines 10-15 of the appeal brief filed on 9/29/2003), claim 42 defines a strap connected to the printer housing and capable of

passing around the back of the user's hand (see page 14, lines 16-20 of the appeal brief filed on 9/29/2003), the palm-receiving portion is stated to be disposed between the front and rear portions (see page 14, lines 21-26 of the appeal brief filed on 9/29/2003), Hanson teaches a hand-held device (14), comprising: a housing (19) having a portion (20) to receive the palm of the user's hand, the palm-receiving portion being contoured and concave (see figure 1), a strap (33) adjacent the contoured portion, wherein the palm-receiving portion of the housing is concave between a front portion and a rear portion of the housing (see figure 1), the strap being connected to the housing and capable of passing around the back of the user's hand, wherein the palm-receiving portion is disposed between the front and rear portions (see figure 1, column 5 lines 4-8, 57-61, and column 6 lines 30-35). One of ordinary skill in the art at the time of the invention would easily recognize that the same benefits and advantages (for example, "... so as to conveniently fit into an open palm of a person intending to use the data terminal", see column 5, lines 6-8, and "... a hand strap 33, conveniently attached to the rear shell 22 of the housing 19, may be used to prevent an operator from accidentally dropping the data terminal 14", see column 6, lines 31-35, of Hanson) of the palm receiving portion and strap, as taught by Hanson, would equally apply to a hand held printer, such as the one taught by Fukumoto et al, in addition to a hand held data terminal. What is important to one of ordinary skill in the art at the time of the invention is that both Fukumoto et al and Hanson teach hand-held devices. Thus, the motivation to combine Hanson with Fukumoto et al as modified by the admitted prior art and Sherman et al comes directly from the teachings of Hanson. Furthermore, no

unexpected results are obtained by applying the palm receiving portion and strap, as known from the Hanson teachings, to a printer rather than a data terminal.

In response to appellant's argument that in claim 44, it is the mirror-image housing sections that mount the printed circuit board, and the modification is based upon an impermissible use of hindsight (see page 15, lines 1-11, of the appeal brief filed on 9/29/2003), Austin et al teaches a portable printer (10), comprising: an elongate housing having a front portion, a rear portion, the housing providing space for receiving a roll of a label web (30), an elongate printed circuit board (40), received by the housing and supported within the housing, and a print module (38) being mounted to the circuit board at the rear portion of the housing (see figures 3, 4, column 3 lines 50-65, column 4 lines 12-21, column 7 lines 65-66). One of ordinary skill in the art at the time of the invention would be motivated to combine the teachings of Austin et al with the device as taught by Fukumoto et al as modified by the admitted prior art, Sherman et al and Goodwin et al, in order to avoid the need for a print head cable by mounting the print head directly on a circuit board (see column 7, lines 65-66, of Austin et al). Since Austin et al teaches that the printed circuit board (40) is contained within the housing, when combining Austin et al with Fukumoto et al as modified by the admitted prior art, Sherman et al and Goodwin et al, one of ordinary skill in the art at the time of the invention would naturally mount the circuit board within the housing as taught by Fukumoto et al as modified by the admitted prior art, Sherman et al and Goodwin et al. Thus, the combination of Fukumoto et al as modified by the admitted prior art, Sherman et al, Goodwin et al, and Austin et al teaches that the printed circuit board is supported

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by the housing sections (since the printed circuit board is located within the housing sections).

Appellant's argument that Austin et al does not mount a print module which is specifically defined as including a thermal print head cooperable with the platen roll and an electric motor for moving the platen roll (see page 15, lines 12-18, of the appeal brief filed on 9/29/2003), appellant's argument is clearly based upon Austin et al individually. As set forth above, the admitted prior art teaches a print module including a thermal print head cooperable with the platen roll and an electric motor for moving the platen roll. One of ordinary skill in the art at the time of the invention would clearly recognize that the benefit of mounting the print module on the circuit board (the elimination of a print head cable, see column 7 lines 65-66, of Austin et al) would apply no matter what the specifics of the print module are.

Appellant's arguments regarding claims 66, 67, 69, and 70 (see page 15, line 19 - page 17, line 20) have been addressed above.

In response to appellant's argument that McKinnon et al is non-analogous prior art which does not even disclose a "printer circuit board" (see page 17, line 21 - page 18, line 2 of the appeal brief filed on 9/29/2003), McKinnon et al is directed to a hand held device, as is Fukumoto et al, and solves the problem of securely mounting batteries (2704) to a printed circuit board (2700) within a housing. Thus, McKinnon et al and Fukumoto et al are analogous in that they both relate to hand-held devices. Therefore, one of ordinary skill in the art at the time of the invention would be motivated to combine the teachings of McKinnon et al with the device as taught by Fukumoto et al

as modified by the admitted prior art, Sherman et al, Goodwin et al, and Austin et al, in order to provide a secure mounting of batteries on the circuit board within the housing. This would also eliminate the need for any wires or cables running from the batteries to the circuit board, since the batteries are mounted on the circuit board. Furthermore, there is no unexpected result obtained by mounting batteries to a printer printed circuit board rather than a circuit board of any other hand held device.

In response to appellant's argument that in Austin et al, because of the pivotal mounting of the printer circuit board, mounting a battery and an electric motor on the Austin et al printer circuit board may be too much weight for the print head (38) against the web (20) in addition to the spring force of spring (66) (see page 18, line 3 - page 19, line 6), Austin et al does not teach that the circuit board must be a pivoting circuit board in order to take advantage of the benefit of eliminating a print head cable. Furthermore, there is no teaching that the print head as taught by the admitted prior art is required to be mounted on a pivoting circuit board. In fact, the prior art print head (34) relies upon the platen roll (39) and springs (50) in order to maintain the paper web and print head (38) in contact with each other. Thus, one of ordinary skill in the art at the time of the invention would recognize that the pivoting circuit board as taught by Austin et al is not required by the device as taught by Fukumoto et al as modified by the admitted prior art, Sherman et al, Goodwin et al and Austin et al. Appellants are analyzing the prior art in a vacuum, without considering the level of ordinary skill in the art and the general knowledge available to those of ordinary skill in the art at the time of the invention.

In response to appellant's argument that it is denied that the battery holder (2712) of McKinnon et al is a separator (see page 19, line 19 - page 20, line 2 of the appeal brief filed on 9/29/2003), McKinnon et al teaches a plurality of adjacent batteries (2704), a separator between each pair of adjacent batteries (as shown in figure 27, the holder 2712 provides an individual compartment for each battery, so that the batteries are separated from each other), and the separators being mounted on printed circuit board (2700) (see figure 27 and column 13, lines 54-60, of McKinnon et al). Thus, the teaching of McKinnon et al meets the claimed limitation of a separator as defined in appellant's claims. Appellant's argument that McKinnon et al is non-analogous prior art (see page 19, lines 22-24, of the appeal brief filed on 9/29/2003) has been addressed above.

Appellant's argument with respect to claims 60, 72, 47, 48, and 49 (see page 20, lines 3 - page 21, line 10, of the appeal brief filed on 9/29/2003) have been addressed above.

In response to appellant's arguments with respect to claim 65 (see page 21, line 11 - page 22, line 3), Fukumoto et al also teaches the portable data entry device (1) including an elongate data entry device housing having a front end (see figures 1 and 2 of Fukumoto et al), a scanner (2) disposed on the front end of the data entry device housing for scanning a code (not shown), a display (4) and a plurality of manually operable keys (5), the scanner being capable of receiving data through the end of the compartment (the scanner extends through an open portion of the front end of the channel in the printer (3) housing, and thus, receives and transmits data to the data

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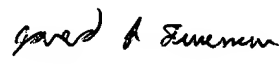
entry device (1) through an open portion of the channel) (see figures 1, 2, and 4 of Fukumoto et al). Appellant's other arguments with respect to claim 65 have been addressed above.

Appellant's argument with respect to claim 50 (see page 22, lines 4-12) appears to rely upon the dependency of claim 50 from claim 37, and thus, this argument has been addressed above.

Appellant's arguments with respect to claims 61-64 (see page 22, line 13 - page 25, line 6 of the appeal brief filed on 9/29/2003) have been addressed above.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,


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jjf
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